



UNITED STATES NAVY

# MEDICAL NEWS LETTER

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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

\* \* \* \* \*

The issuance of this publication approved by the Secretary of the Navy on 28 June 1961.



Fibrinolysis and Hemorrhages in Fatal Heatstroke \*

Major Shlomo Shibolet, MC, Israel Defence Army (1), Sharon Fisher MD (2), Tuvia Gilat MD (3), Harry Bank MD (4), and Harry Heller MD (5). Tel Hashomer, Israel. New Engl J Med 266:169-173, January 25, 1962.

Hemorrhagic manifestations are known to be a constant feature in fatal heatstroke. When death from heatstroke takes place rapidly (in 70% of the 125 cases reported by Malamud et al, death occurred within 24 hours) an acute and general derangement of biochemical reactions on a cellular level seems to be implicated. However, such an assumption does not explain satisfactorily the clinical picture in the authors' first two cases. Both were characterized by apparent improvement in all vital signs within the first 12 to 24 hours only to be followed by rapid and relentless deterioration ensuing in death. Indeed, such a clinical course of initial coma, lucid interval, and subsequent deterioration has already been recognized by Malamud, Haymaker, and Custer.

The laboratory observations in Case 1 do not provide evidence of rapidly progressing liver or kidney damage of a degree sufficient to cause death. Moreover, the clinical manifestations before death were mainly cerebral or circulatory. Considering the widespread and multiple hemorrhages in such vital centers as the region of the third and fourth ventricles and the heart muscle, it is believed that these may readily explain the course and fatal outcome in this case.

Low prothrombin values in heatstroke have been recorded by several authors and have been referred to as a cause of the hemorrhagic phenomena. Since hypoprothrombinemia was found in all the writers' cases, it may be considered a factor in hemorrhage, although it certainly does not constitute the only cause. The hypoprothrombinemia has been thought to be the result of liver damage; however, the degree of impairment of liver function as reflected by the various tests could hardly explain the extremely low prothrombin levels seen within 20 hours after the onset of heatstroke.

Increased capillary fragility has been demonstrated by Wright et al. That it occurs seems likely, in view of the widespread tissue damage in severe heatstroke.

In the light of the foregoing remarks, the finding of afibrinogenemia in three cases of fatal heatstroke gains added significance. It appears that the widespread and multiple hemorrhages typical of heatstroke may well be caused by a combination of capillary damage with afibrinogenemia. In view of their findings, the authors are attracted by the assumption that the fibrinolysis and its effects on blood-clotting proteins may constitute the main cause of fatal hemorrhages in severe heatstroke, especially when the clinical picture shows the lucid interval.

In reviewing the literature there could be found no reports of fibrinogen or fibrinolysin determinations in heatstroke. As long ago as 1838, however, it was noted in postmortem material that the blood was not clotted, and this was again emphasized in 1892 by Osler. In one of the fatal cases of Malamud et al

the clotting time was 45 minutes, and it was noted that for many minutes after a blood transfusion, blood continued to ooze from the puncture wound. In a clinicopathologic conference on a case of heatstroke, the bleeding time was 12 minutes, the coagulation time 85 minutes, and the prothrombin level less than 10%. In discussing this case, Sherry suggested that the bleeding phenomena and laboratory findings may have been caused by hypofibrinogenemia, but no fibrinogen measurements had been made. Prolonged clotting time in heatstroke was reported by Halden et al.

Three factors have been known to cause hypofibrinogenemia or afibrinogenemia: decreased production, massive intravascular clotting, and increased fibrinolysis. The half-life time of fibrinogen is 4 or 5 days. Failure of production, therefore, cannot account for the occurrence of afibrinogenemia within 20 hours. In the cases presented in this article, intravascular clotting was especially looked for but was not found. Consequently, increased fibrinolysis remains the most probable cause of the afibrinogenemia as was actually demonstrated in Case 1.

In fibrinolysis a prolonged prothrombin time as measured by the Quick method may be caused either by lysis of prothrombin and its accelerators or by the absence of fibrinogen which will prevent clotting. The authors did not determine the prothrombin time after adding fibrinogen and factor V to the plasma as indicated by Ware and Stragnell. However, deficiency of factor VII was actually demonstrated in Case 1. The hypofibrinogenemia syndrome has been reported to be accompanied by mild thrombocytopenia which was present in one of the cases reported here. It may be concluded, therefore, that the prolonged prothrombin time, mild thrombocytopenia, certain clotting defects, and the hemorrhagic phenomena cited in the literature on heatstroke can all be satisfactorily accounted for by fibrinolysis and afibrinogenemia.

Heat stroke must accordingly be included in the list of conditions known to result at times in increased fibrinolysis and afibrinogenemia. These conditions are as follows: trauma; severe burns; massive blood transfusions; pulmonary, thyroid, uterine, prostatic, and liver surgery; pregnancy; cancer; and severe liver disease.

Enhanced fibrinolysis has been reported to follow shock, hyperthermia, liver damage, tissue damage, physical effort, and administration of adrenergic drugs. All of these factors are operative in the patient with heatstroke before the clinical manifestations of fibrinolysis appear. The relative importance of these various factors in heatstroke cannot be evaluated at present. However, it seems acceptable that the widespread tissue damage liberates tissue activators of plasminogen into the circulating blood.

The therapeutic implications of these findings are impelling. In addition to rapid cooling and other supportive measures, intensive therapy with fresh blood, fibrinogen solutions, ACTH and, possibly, epsilon-amino-caproic acid must be instituted in appropriate cases of heatstroke without delay for laboratory confirmation which may lead to costly loss of time. These measures should be continued throughout the course of the disease until there is evidence that fibrinogen values have returned to a normal level. The occurrence



of afibrinogenemia in heatstroke accentuates the need for a rapid and reliable method for the determination of fibrinogen in directing the therapy.

NOTE: The authors report they are indebted to Colonel Dr. B. Padeh, Surgeon General, Medical Corps, Israel Defence Army, to Dr. K. Marberg and Dr. O. Franckl for permission to use their material. Postmortem examinations were performed by Dr. H. Karplus and Dr. A. Rabinowitz of the Greenberg Institute of Forensic Medicine in Tel-Aviv.

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\* \* \* \* \*

#### Effect of Physical Exercise on Serum Transaminase \*

CAPT H. A. Schlang MC USN with technical assistance of C. A. Kirkpatrick  
HM1 USN. Amer J Med Sci 242: 122-125, September 1961.

A patient with chest pain following strenuous physical exercise failed to conform to the expected clinical picture of myocardial infarction, although the serum transaminase was elevated. The experience prompted a study of the effect of physical exercise on the serum glutamic-oxalacetic transaminase (SGOT) and the serum glutamic-pyruvic transaminase (SGPT) in healthy males.

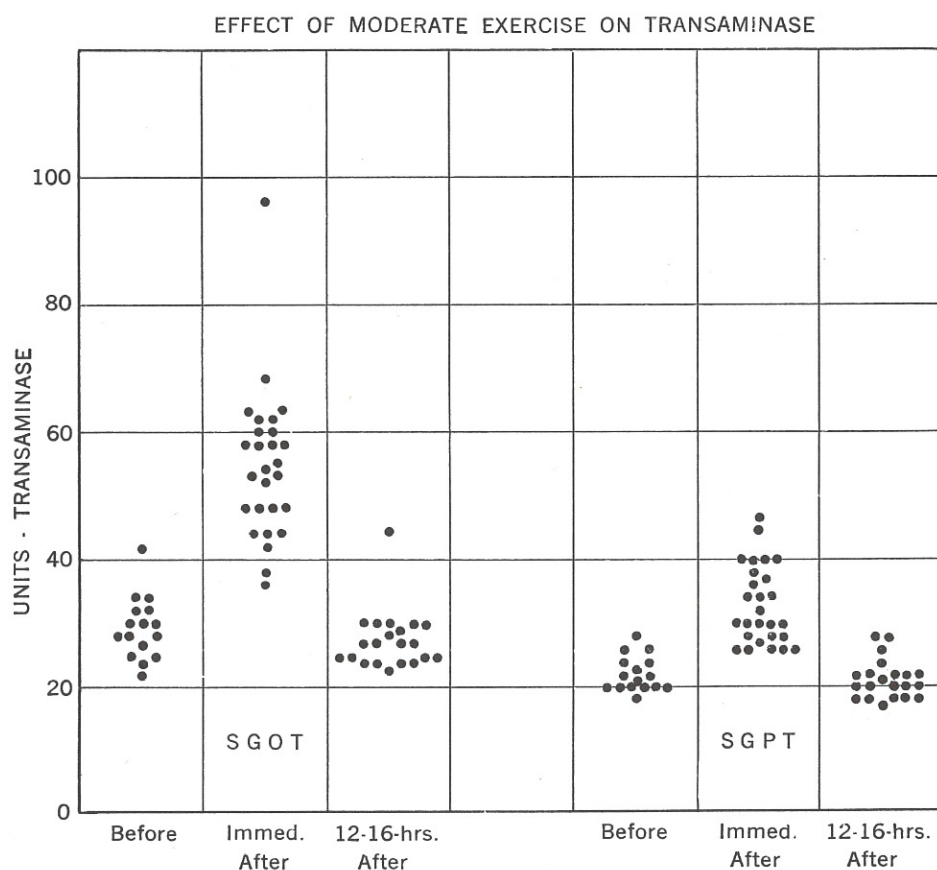
SGOT and SGPT were determined by the method of Karman, Wroblewski, and LaDue modified by Reitman and Frankel. The upper limit of normal in this laboratory is taken to be 40 units for SGOT and 45 units for SGPT.

The 27 subjects were male Marine Corps and Naval personnel ranging in age from 17 to 34 years. The average age for the group was 21 years. The usual occupations of the participants varied with their service ratings. The exercises were either part of a physical fitness testing program or were voluntarily undertaken for the purpose of the present study. There was no obvious disease in any of the subjects. The exercise in each instance was strenuous according to the classification offered by Yater and associates who consider strenuous such activities as drilling, marching, running, laboring, and participation in sports. One individual whose control (pre-exercise) SGOT and SGPT were 56 and 80 units respectively was excluded from the study.

Blood was drawn from an antecubital vein after the application of a tourniquet which was left in place during the bleeding.

Results are shown in the scattergram on page 6. Control levels in swimmers are not given. It was felt undesirable to expose the subjects to even the hypothetical risk of infection that might attend venipuncture immediately prior to immersion in a swimming pool.

Data indicate that there is a nearly uniform moderate rise in the level of SGOT immediately after exercise and that the serum level of the enzyme returns to normal within 12 to 16 hours. SGPT shows a much smaller rise which tends to remain within the normal range.



At the beginning of this study no report on the effect of exercise on serum transaminase levels had appeared in the available English literature, although such an effect had been observed by Wroblewski during the course of some studies. While the paper was in preparation a report appeared which mentioned, but did not detail, a rise in SGOT with no rise in SGPT following physical exercise (K.S. Henley, E. Schmidt, and K. W. Schmidt).

Glutamic-oxalacetic and glutamic-pyruvic transaminases are present in several tissues. Skeletal muscle and cardiac muscle are particularly rich in SGOT (Wroblewski and LaDue). The mechanism whereby exercise of skeletal muscle raises the level of SGOT is unknown. Injury in the usual sense would seem to play no part. The rise in SGOT following exercise complicates the interpretation of elevated levels of the enzyme in the serum of patients with chest pain following strenuous physical exertion. In such a patient the elevated SGOT could result from exercise per se or from a myocardial infarction induced by strenuous exercise or, indeed, it could result from a combination of both.



The direct role of exercise in raising the level of the SGOT in this clinical setting may be assessed to a degree by applying the criteria that, in exercise induced elevations, the SGPT is not raised above the normal level; the SGOT has not thus far exceeded 100 units and the elevated level returns to normal within 12 to 16 hours. Although SGPT may be within normal limits and SGOT be less than 100 units in myocardial infarction, the elevated SGOT tends not to return to normal within 12 to 16 hours, but rather reaches peak values in 18 to 36 hours (Conrad).

Summary. A study was made of the effect of physical exercise on the serum transaminase. It was demonstrated that physical exercise of a moderately strenuous nature regularly raises the level of the serum glutamic-oxalacetic transaminase, in most instances, to levels above the upper limit of normal. The serum glutamic-pyruvic transaminase, although showing a slight rise, tends to remain within normal limits.

Since the transaminase level is so frequently used in the laboratory diagnosis of myocardial infarction, and since infarction occasionally appears to be precipitated by exercise, confusion in interpretation of transaminase levels after exercise may arise. The finding that the elevated level of transaminase induced by exercise returns to normal within 12 to 16 hours permits a resolution of such a diagnostic problem.

\* From U.S. Naval Hospital, Jacksonville, Fla.

\* \* \* \* \*

#### Birth Characteristics of Children Dying of Malignant Neoplasms

Brian MacMahon MD, and Vaun A. Newill MD, Dept of Epidemiology,  
School of Public Health, Harvard University. J Nat Cancer Inst 28:  
231-244, 1962.

Through review of certificates of death and birth, the authors have identified 4198 children who were born between 1947 and 1954 in any of the New England or Middle Atlantic States and who died at some time between 1947 and 1958 of malignant disease.

Data from the birth certificates of these children have been compared with similar data on all live births in the same region during the same years and with data from certificates of a comparison series. Mortality from leukemia was associated both with birth order and with maternal age. The risk of death was found to be about 50% higher in first than in fifth and later births, and about 40% higher in children of women over 40 years of age than in those of women under 20. These associations were independent. No other form of neoplasm showed a significant association with either maternal age or parity. No association of mortality from leukemia or other neoplasm with birth weight or number of prior stillbirths was found. Twins were not unduly represented in the series. The series contained one instance of a set of twins, both of whom died of leukemia.

Isocitric Dehydrogenase Test in  
Medical and Surgical Jaundice\*

F. Steigmann, A. Saad, and A. Dubin, Chicago, Ill. J Lab Clin Med  
58: 960-961, December 1961.

Differentiation between medical and surgical jaundice is difficult, especially in cases with poor history, lack of physical findings, and equivocal laboratory tests. The transaminases which originally were considered helpful in this differentiation have been found abnormally high in some types of surgical as well as medical jaundice. The authors, therefore, evaluated the recently introduced isocitric dehydrogenase test in cases of medical and surgical jaundice. Eighty cases of acute hepatitis and 15 of surgical jaundice were studied. The results follow:

The isocitric dehydrogenase average in acute hepatitis was 1149, with a serum glutamic-oxalacetic transaminase (SGOT) and serum glutamic-pyruvic transaminase (SGPT) average of 522 and 697, respectively. In the surgical cases, the isocitric dehydrogenase average was 595, and the SGOT and SGPT were 151 and 77, respectively.

If 3 cases of malignant obstruction with liver metastases—which have higher enzyme values—are excluded from the surgical jaundice cases, the isocitric dehydrogenase average drops to 380 and the SGOT and SGPT to 90 and 66, respectively.

A breakdown by duration of illness showed the isocitric dehydrogenase average to be 2071 in the first week, 1378 in the second, and 1213 in the third week. In 5 cases which were observed longer the average values receded from 1213 to 1186, 965, 600, and to 165. In patients whose symptoms persisted a high isocitric dehydrogenase was found for several weeks.

Of particular interest was the finding that, in hepatitis with intrahepatic obstruction as evidenced by absence of urobilinogen from the urine, the isocitric dehydrogenase values were extremely high—average 2618 in 10 cases. This test may, therefore, prove helpful in the differentiation between medical and surgical jaundice.

\* Proceedings of the Central Society for Clinical Research. Thirty-fourth Annual Meeting—Abstracts

\* \* \* \* \*

Absorption of Inhaled Water in Experimental  
Pulmonary Edema and Embolism

The effect of pulmonary edema and pulmonary embolism on the rate of absorption of standard amounts of inhaled fluids was investigated in rats. Relative lung weight (=lung weight in percent of body wt) was used as an index of the fluid content of the lung.  $\alpha$ -Naphthylthiourea (ANTU) was used to induce lung edema; intravenous barium sulfate was used as embolic material.



Fresh water (.1 ml/100 g/body wt), saline, and other fluids were introduced intratracheally; the animals were sacrificed 5 min (fresh water), 5, and 15 min (physiologic saline) subsequently. The rate of fluid absorption from the lungs was not affected by ANTU lung edema, but was significantly delayed after pulmonary embolism. The implication of these findings is discussed in the article. (B. Starzecki, and D. F. J. Halmagyi. Amer J Physiol 201: 762-764, November 1961)

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#### ORIGINAL ARTICLE

##### Malaria Prevention Carried out by the Navy

CDR J. W. Millar MC USN, Director, PrevMedDiv, BuMed, and  
CAPT J. D. DeCoursey MSC USN, Head, Vector Control Branch,  
PrevMedDiv, BuMed.

#### Extent of the Problem

In World War I, malaria was not considered to be a serious threat in France and areas of Europe, and little attention was given to the protection of troops from mosquitoes. The services of entomologists were sporadically utilized during the period, 1918 to 1941, with fourteen entomologists commissioned in the Organized Reserves. They formed the nucleus of commissioned officers called to duty in 1941; the total number of entomologists utilized during World War II was about two hundred and ten.

Early malaria control units contained one officer and two enlisted men. Later, three additional enlisted personnel were added to the units. When troops contracted malaria with the first land engagements in World War II (New Guinea and the Solomons) the need for military entomologists was fully realized.

In April 1942, the malaria rate on Efate in the South Pacific was 2600 per 1000 per annum. This rate was gradually reduced to zero in August 1942, apparently through the rigid use of Atabrine suppression, since no mosquito control operations were in effect. (See chart on page 10) An epidemic on Guadalcanal in October 1942 had a peak case rate of 1800 per 1000 per annum in November. This epidemic lasted for nearly a year, and the case rate averaged more than 1000 per 1000 per annum for 8 months. A malaria control unit was sent to Guadalcanal in November 1942, and the South Pacific Malaria and Epidemic Control Group was ultimately established, consisting of U. S. Army, U. S. Navy, and New Zealand personnel.

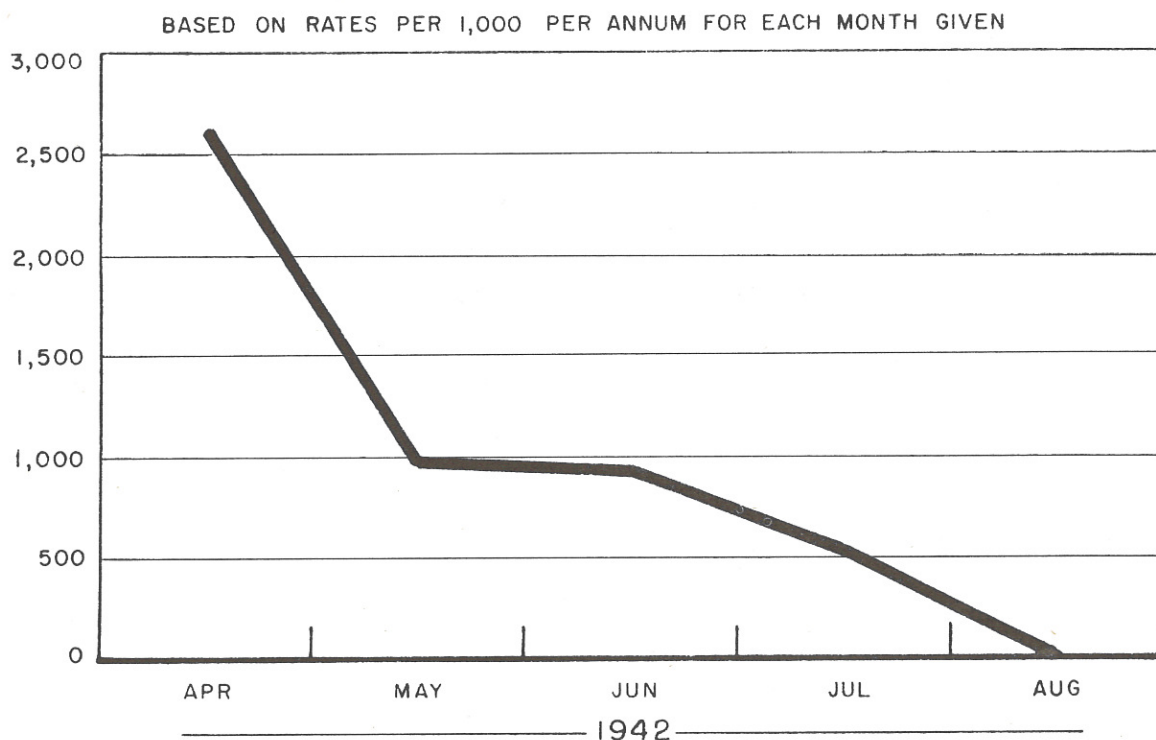
Little equipment was available in the early days. Operations consisted mainly of drainage; oiling standing water; use of protective clothing, head nets, bed nets, aerosol bombs, personal repellents (dimethyl phthalate, Rutgers 612, and Indalone) and chemoprophylaxis.

#### Present Control Methods

For years, the 3-gallon hand sprayer has been the real work horse in Anopheles control. Military specifications were prepared and dispersal equipment

and insecticides placed on the supply table as standard stock items. Environmental control measures include proper selection of camp and base sites, mosquito proofing, destruction of adult mosquitoes, and the control of mosquito breeding (improvement of natural drainage, stream flushing and clearance, water level fluctuation and proper shoreline maintenance of impounded water, control of aquatic vegetation, proper control of flood waters, felling and grading, ditching, and larviciding.) Personal protective measures still include the use of protective clothing, bed nets, chemical repellents, and the avoidance of unnecessary exposure through visiting local villages, and swimming.

### DECREASE IN MALARIA RATE ON EFATE IN THE SOUTH PACIFIC DUE TO<sup>n</sup> ATABRINE PROPHYLAXIS



#### Drugs, Sprayers, and Insecticides

Chemoprophylaxis consisted of Atabrine during World War II, and Chloroquine during the Korean conflict. Chloroquine and Primaquine are used at the present time.

Equipment used in the Navy includes hand and power-operated sprayers and dusters, mist and fog applicators, and aerial dispersal devices (including helicopters). Hand operated dusters include the rotary-blower type. Two-gallon sprayers are used to apply residual sprays in buildings and to small outdoor areas. Rotary dusters are used for larviciding, and dusting foliage and grass areas. Outdoor residual spraying, larviciding, and the dispersal of large



volumes of insecticides of low concentrations are accomplished with power or hydraulic sprayers. Plunger type sprayers are often utilized for space sprays indoors. Mosquito light traps often are used in mosquito surveys.

DDT is still utilized as a residual adulticide where resistance has not developed. Where resistance has been demonstrated, malathion or dieldrin are often used. DDT, chlordane, lindane, or malathion are used for temporary space treatments. Larvicides include DDT, dieldrin, chlordane, lindane, or malathion.

The dispersal of insecticides by aircraft is accomplished in the United States and possessions only with the approval of the District Commandant; Commander, Marine Corps Air Bases; Area Commander, or his delegated authority upon recommendation of a Naval Medical Department District or Area Public Works entomologist. In overseas areas the cognizant Naval Commander is authorized to approve aerial dispersal when he considers it justified and the operation is supervised by qualified personnel. Aerial dispersal is utilized only when ground operations are not feasible or cannot be accomplished.

Liaison is maintained with the U. S. Department of Agriculture; local, State, and Federal Health agencies; State entomologists; and the Fish and Wildlife Service.

#### Malaria Rates

In the Navy and Marine Corps the malaria rates were:

1942 - 1124/100,000	WWII	1951 - 97.3/100,000	Korean conflict
1943 - 2689/100,000	WWII	1952 - 113.6/100,000	Korean conflict
1944 - 889/100,000	WWII	1953 - 225.2/100,000	Korean conflict
1945 - 393/100,000	WWII	1954 - 55.3/100,000	
1946 - 154.3/100,000		1955 - 56.8/100,000	
1947 - 94.1/100,000		1956 - 5.8/100,000	
1948 - 35.9/100,000		1957 - 11.0/100,000	
1949 - 15.7/100,000		1958 - 12.5/100,000	
1950 - 12.3/100,000	Korean conflict	1959 - 6.8/100,000	
		1960 - 6.6/100,000	

#### Chemoprophylaxis

The following information relates to the types of drugs and their dosage used in malaria chemoprophylaxis (or "Suppressive therapy") in the U. S. Navy and U. S. Marine Corps:

World War II: Quinacrine (Atabrine), 0.1 gm tablet orally, daily for six days each week during exposure to malaria

Korean War: Chloroquine phosphate 0.5 gm tablet once a week for duration of malaria exposure

### Present Malaria Chemoprophylaxis Schedule:

Chloroquine phosphate, 0.5 gm tablet once weekly for duration of exposure. Upon termination of exposure, a single 1.0 gm dose of Chloroquine phosphate is taken followed by a course of Primaquine phosphate, 26.3 mgm tablet, daily for 14 days.

The U.S. Army is now using a combined Chloroquine-Primaquine tablet for malaria chemoprophylaxis for personnel of the 8th Army in Korea. This tablet is taken once a week for the duration of exposure in Korea. No postexposure medication is given. This preparation is now a standard item of medical supply; however, the Navy has not adopted this combination for general use as yet. All of these chemoprophylactic drugs and schedules are designed for relatively long exposures to malaria—several months to a year. The efficacy of the combined Chloroquine-Primaquine regime on short exposures of days or weeks is unknown at the present time.



## MISCELLANY

### Normal Values in Clinical Chemistry

The following is a tabulation of normal values for tests and analyses in clinical chemistry which are currently performed in the Biochemistry and Urinalysis Branches of the Clinical Pathology Laboratories, U.S. Naval Medical School, NNMC, Bethesda, Md. The list was submitted on invitation, and is published on both sides of the following page as a ready reference tear-sheet for those who might desire to preserve and utilize it. It must be said that such an extensive compilation is difficult to come by in the ordinary perusal of present day medical literature.

CAPT John S. Shaver MC USN, Commanding Officer of the U.S. Naval Medical School, advises that there is some degree of variation between directors of clinical laboratories in what they construe to be the range of normal values in certain procedures. Likewise, the element of time has been associated with revision of concepts of "normal limits," as in the case of total blood cholesterol—which was once considered much higher than presently accepted. Dr. Shaver emphasizes that the ranges of normal values here recorded represent those which he and his Staff have found, through collective and cumulative experience, to be most commonly encountered in the laboratories of the U.S. Naval Medical School.

—Editor



SERUM NITROGENOUS CONSTITUENTS

Amino Ac. N.	4.0-8.0	mg/100 mls.
Ammonia N.	30-130	mcgm/100 mls.
B.U.N.	9-19	mg/100 mls.
Creatine	1.0-2.0	"
Creatinine	0.6-1.5	"
Fibrinogen	200-400	"
N.P.N.	25-30	"
Protein, Tot.	6.5-7.8	gm/100 mls.
Albumin	3.8-4.6	"
Globulin	2.3-3.5	"
Cryoglobulins		Negative
Macroglobulins		Negative

SERUM CARBOHYDRATES & DERIVATIVES

Ascorbic Acid	0.5-1.5	mg/100 mls.
Glucose	65-95	"
Lactic Acid	5-20	"
Pyruvic Acid	0.7-2.0	"
Total Pentose	35-55	"

SERUM LIPIDS & DERIVATIVES (FASTING)

Acetone Bodies	0.8-5.0	mg/100 mls.
Cholesterol		
Total	125-250	"
Free	60-100	"
Esters	90-114	"
Fatty Acids	290-420	"
Lipids, Total	500-700	"
Neutral Fats	150-200	"
Phospholipids	200-250	"

SERUM ELECTROLYTES

Total Base	145-154	mEq/L
Sodium	135-143	"
Potassium	3.8-5.0	"
Chloride	97-106	"
CO <sub>2</sub> (Capac.)	24-33	"
Magnesium	1.8-2.2	"
Calcium	9-11	mg/100 mls.
Inorg. Phosphorus	2.4-4.7	"
Inorg. Sulfur	0.5-1.1	"

SERUM PIGMENTS

Hemoglobin (Hgb)	0.3-2.5	mg/100 mls.
Bilirubin(tot) Less than	1.5	"
Bilirubin (Direct)	0.0-0.25	"

SERUM ENZYMES

Amylase	50-150 Units
Lipase	0.0-1.5 ml 1/20 N NaOH
Phosphatase, Alkaline	
Adult; 0.8-2.3 Bessy Lowery Units	
Child; 2.8-6.7	" " "
Phosphatase, Acid	
Male .13-.63	" " "
Female .01-.56	" " "
S.G.O.T.	Less than 40 Units*
S.G.P.T.	Less than 35 Units**
L.D.H.	200-700 Units***
Cholinesterase	55-100 Units/ml.
Isocitric Dehydrogenase	3.0-8.5 Units/ml.

MISCELLANEOUS TESTS ON SERUM

BSP (5mg/kg)	0-5% (45 min)
Ceph-Chol-Flocc.	Neg. or 1 plus
Thymol Turbidity	0-5 Units
P.B.I. (Protein Bound Iodine)	
	3-8 mcgm/100ml
Iron (Male)	80-160 "
Iron (Female)	65-130 "
IronBiCapac.	200-300 "
Lead (Blood)	1-6 "
Lead (Serum)	0-1 "
Copper	65-165 "
Carotene	50-200 "
Congo Red	Plus 60% Retained
Salicylates	Negative

MISCELLANEOUS TESTS ON BLOOD

Blood Alcohol (Bogen's)	0-0.5 mg/ml
Blood pH(Arterialized capillary blood)	7.3-7.5

FECAL ANALYSIS

pH	6.9-7.7
Urobilinogen	10-400
	(Ehrlich Unit/100 gm)
Total Fat	5.8-25.6% of dry wt
Tryptic Activity	Negative
Occult Blood	Negative

URINARY NITROGENOUS CONSTITUENTS

Total Protein	0-200 mg/24 hrs.
Urea	25-35 gm/24 hrs.
Uric Acid	0.5-1.0 "
Creatinine	1.2-1.7 "
Creatine	0-60 mg/24 hrs.
Ammonia Acid Nitrogen (Adult)	200-700 "
Ammonia Acid Nitrogen (Infant)	Less than 100 mg/24 hrs.
Bence-Jones Protein	Negative

URINARY ELECTROLYTES

Sodium	3.5-5.0 Gm/24 hrs.
Potassium	1.5-2.5 "
Calcium	0.1-0.3 "
Chloride(NaCl)	10-15 "
Phosphate	0.8-1.3 "
pH	4.6-8.0

URINARY HORMONES

17 OH Corticoids	4-10 mg/24 hrs.
17 Keto. Steroids (Male)	10-22 "
17 Keto. Steroids (Female)	6-18
F.S.H. (Follicle Stimulating Hormone)	Less than 28 Mouse Units
Vanilmandelic Acid	Less than 6.8 mg/24 hrs.
Catechol Amines	10-100 mcgm/24 hrs.
Pregnanetriol (Male)	Less Than 1.0 mg/24 hrs.
Pregnanetriol (Female)Proliferate	Mean
	Less than 1.5 mg/24 hrs.
Pregnanetriol (Female) Luteal	Mean
	Less than 2.0 mg/24 hrs.
Pregnanetriol (Female) Post	menopausal
	Less than 0.7 mg/24 hrs.

URINARY PIGMENTS

Hemoglobin	Negative
Porphobilinogen	Negative
Uroporphyrins	Negative
Coproporphyrins	Less than 500 mcgm/24 hrs.
Bilirubin	Negative
Urobilinogen	Less than 0.25mg/2 hrs.
	or 1-35 mg/24 hrs.

URINARY PIGMENTS CONT.

Urobilin	Negative
Melanin	Negative
Homogentisic Acid	Negative

RENAL FUNCTION TESTS

Fishberg Concentration	Sp. Gr. more than 1.024
PSP	25%, 15 min.
Urea Clearance (Maximum)	60-90 ml/min.
Urea Clearance (Standard)	45-65 ml/min.
Creatine Clearance	100-145 ml/min.
Addis Count	
Leukocytes	1 mil/12 hr.
Erythrocytes	0.5 "
Casts	5000 in 12 hr.

MISCELLANEOUS URINARY CONSTITUENTS

Acetone	Negative
Glucose	Negative
Phenylpyruvic Acid	Negative
Lead	2.5-3.5 mcgm/100 ml.
Amylase (diastase)	6.7-33 Wohlgemuth units/ml.
	or 8000-30,000 Wohlgemuth units/24 hr.
5-H.I.A.A.	2-8 mgm/24 hrs. ****
Heavy Metals	Negative
Salicylates	Negative
Barbiturates	Negative
Xylose Clearance Test	6-11gm/5hr for 25gm
	(required dose)

CERBRO-SPINAL FLUID

Protein	15-60 mg/100 ml.
Urea Nitrogen	7-15 "
Glucose	40-80 "
Chloride	119-128 "

\* SGOT is the Serum Glutamic Oxalacetic Transaminase

\*\* SGPT is the Serum Glutamic Pyruvic Transaminase

\*\*\* LDH is Lactic Dehydrogenase

\*\*\*\* 5-Hydroxy-indolacetic Acid (Serotonin)



Admiral Anderson Reelected President  
of Navy Mutual Aid Association

The Board of Directors of the Navy Mutual Aid Association, at their annual meeting on 15 February 1962, announced the reelection of ADM G. W. Anderson Jr, USN as President. Other officers elected by the membership were RADM A.H. Van Keuren USN (Ret), First Vice President; VADM V.R. Murphy USN (Ret), Second Vice President; LTGEN W.M. Greene Jr, USMC, Third Vice President; VADM K.K. Cowart USCG (Ret), Fourth Vice President; and CAPT P.R. Engle MC USN, Vice President-Medical Director. Elected to the Board of Directors were:

RADM L.A. Bachman USN (Ret)	RADM A.S. Heyward Jr, USN
RADM J.W. Bottoms SC USN	CAPT A.C. Husband CEC USN
RADM F.A. Brandley USN	RADM R.L. Moore Jr, USN
ADM A.A. Burke USN (Ret)	LTGEN J.C. Munn USMC
RADM J.W. Crumpacker SC USN	CAPT G.D. O'Brien USNR
RADM J.B. Heffernan USN (Ret)	LCDR J.F. O'Neil USN
RADM A. M. Shinn USN	

The Board of Directors reappointed CAPT T.S. Dukeshire SC USN (Ret) as Secretary and Treasurer, and LCDR M.E. Koepke MSC USN (Ret) as Assistant Secretary and Treasurer. VADM V.R. Murphy USN (Ret) was continued in office as Chairman of the Finance Committee; VADM K.K. Cowart USCG (Ret) as Chairman of the Membership Committee; and RADM L.A. Bachman USN (Ret) as Chairman of the By-Laws Committee.

The Chase Manhattan Bank of New York City was continued as investment counsel for the Association, and the Morgan Guaranty Trust Company of New York City retains custody of the Association's securities. The actuarial firm of Bowles, Andrews, and Towne of Richmond, Va., will continue to serve as the Association's actuarial adviser.

ADM Anderson noted in his acceptance speech the reliance placed in Navy Mutual Aid by its members, wherever they may be serving. Today's Navy requires a great deal from its officers, including long separations from their families. Knowing that the services of Navy Mutual Aid are available makes them feel that their dependents will be provided for should anything happen to them.

CAPT Dukeshire reported that membership increased by 10% in 1961 to 33,984 members, and that the Association's total assets on 31 December 1961 were \$54,999,612.

\* \* \* \* \*

We take care of our health, we lay up money, we make our roof tight and our clothing sufficient, but who provides wisely that he shall not be wanting in the best property of all—firends?

—Emerson

Specialty Board CertificationsAmerican Board of Dermatology

LCDR Merrill M. Cooper MC USN

American Board of Internal Medicine

CAPT Henry A. Schlang MC USN

American Board of Neurological Surgery

LCDR Nicholas P. Kitrinos MC USN

American Board of Ophthalmology

LCDR Thomas R. Kleh MC USN

American Board of Orthopaedic Surgery

CDR Martin C. Wilber MC USN - Diplomate

LCDR Richard B. Gresham MC USN - Diplomate

American Board of Otolaryngology

LCDR Martin C. Shea JR, MC USN - Diplomate

American Board of Pathology

LCDR Charles N. Gamble MC USNR (Active)

American Board of Pediatrics

LT John H.A. Bomberger III MC USN

LT Robert F. Castle MC USNR (Active)

LT David Harris MC USN

American Board of Radiology

LT Philip J. Jameson MC USN

American Board of Surgery

CDR Charles S. Durden MC USN

CDR Donald H. McLean MC USN

CDR William R. Moore MC USN

LCDR Jerome W. Canter MC USNR (Active)

LCDR Seymour (n) Furman MC USNR (Active)

LCDR Wilford D. Hoofer MC USN

LCDR Walter M. Johnson MC USN

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Other Attainments of U.S. Naval Medical OfficersJefferson Medical College of Philadelphia - Clinical Obstetrics and Gynecology

CAPT James H. Lee Jr, MC USN, Assistant Professor



American Academy of Ophthalmology and Otolaryngology

LCDR George R. Hart MC USN - Certification as Fellow

American Academy of Orthopedic Surgeons

LCDR George F. Risi MC USN - Membership

American Academy of Physical Medicine and Rehabilitation

CAPT Anton A. Tratar Jr, MC USN - Fellowship

American College of Physicians

LCDR Franklin D. Beary MC USN - Associateship

LCDR Joseph Stitcher MC USN - Associateship

American College of Radiology

LCDR Ronald W. Glover MC USN - Membership

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Announcement of a New Publication

Exposure to Radiation in an Emergency, National Committee on Radiation Protection and Measurements, Report No. 29, issued February 15, 1962, 105 pages, 50 cents (35 cents per copy in lots over 99 copies, 25 cents per copy in lots over 999 copies). (May be ordered from Section of Nuclear Medicine, University of Chicago, 948 East 58th St., Chicago 37, Ill.)

This report was prepared by the Subcommittee on Permissible Exposure Doses under Emergency Conditions of the National Committee on Radiation Protection and Measurements, which is composed of representatives from various scientific and medical organizations. For more than 30 years, the NCRP has been conducting studies and making recommendations in the field of radiation protection and measurement.

This study of emergency exposure to radiation presents recommendations for procedures for civil defense officials before, during, and after a large scale nuclear disaster. The report departs from the usual frame of reference used for studies of radiation exposure and protection, that is, the "permissible dose" concept. The study realistically assumes that in large-scale nuclear disasters, civil defense officials will face situations in which staff members and many citizens under their command in the area will have received far in excess of the permissible dose, and that they will be forced to proceed from there.

This publication offers guidelines to persons in positions of command. The study is presented on the premise that medical and scientific staff officers will interpret and advise, but that decisions ultimately must be made by the official responsible for operations. Therefore, instead of going into technical details of radiologic damage, and medical diagnosis and treatment, the report focuses attention on the relationships between the size of dose, seriousness of

the effect, and the ultimate outcome. It describes the important characteristics of radiation and radioactive fallout; estimation of doses; biologic, statistical, and clinical features of radiation injury; late somatic effects; factors to be used for predicting the number of persons who will require medical care, and for predicting other outcomes of human exposure; and also for the problems of protracted exposure.

A number of topics, such as effects of radiation on work capacity and the effects of radiation on livestock and crops, are considered briefly in the report.

\* \* \* \* \*

### Relapsing Fever in California

Reported by J.D. Keyes MD, Health Officer, Shasta County, Calif., and P.K. Condit MD, Chief, Bureau of Communicable Diseases, California State Dept of Health. Morbidity and Mortality Weekly Report, PHS DHEW, February 16, 1962.

Relapsing fever was diagnosed on December 9, 1961, in a 32-year old resident of California. The patient's main hobby was hunting and, beginning in the latter half of September, he hunted deer each weekend. From September to November he did not kill any animal, nor did he help in the handling or skinning of a deer shot by his companion. On November 5, 1961, he shot a gray squirrel, skinned, and cleaned it. He noted at that time that a tick was attached to the belly of the squirrel. The patient had an open cut on his right index finger at the time of skinning the squirrel.

Beginning on November 11, he noted onset of headache, chills, and fever to 104° F, and sweats. The episode lasted for 3 days and he returned to work. The symptoms of headache, high fever, chills, and sweats returned each week thereafter, lasted 2 to 3 days, and subsided, permitting him to return each time to work. The last episode of fever started on December 8, 1961. Borrelia infection was identified shortly thereafter by Wright stain of a blood smear. The patient was hospitalized where the diagnosis was confirmed and antibiotic therapy instituted. Response to therapy was prompt and the patient returned to work.

This was the second case of relapsing fever reported in the same general area within 3 months. The first report appeared in MMWR on November 3, 1961, Vol. 10, No. 43. The regions where the infections were contracted are over 100 miles apart. The source of the first infection was thought to be from fleas or possibly ticks. This latest case presumably became infected directly from an infected animal's blood through a cut on the patient's finger.

\* \* \* \* \*



Progress in Vocational Rehabilitation

Space Age telemetering devices, electronic data-processing technics, and other scientific marvels being applied to vocational rehabilitation problems are described in the January-February issue of Rehabilitation Record, the official magazine of the Office of Vocational Rehabilitation, U.S. Department of Health, Education, and Welfare.

One article tells of the "Living Laboratory of the Disabled" at the modern Long Island factory of Abilities Inc., where more than 400 handicapped workers are employed. To play his role in the "Living Laboratory," a worker wears a tiny telemetering device smaller than a pack of cigarettes. By this means, his heart action, pulse, breathing, blood pressure, skin temperature, energy consumption, and other bodily functions are observed on closed-circuit television by medical researchers as he goes about his daily routine. This project, carried on by Human Resources Foundation (the research and teaching arm of Abilities Inc.), is expected to throw light on the physiologic and psychologic traits of disabled and nondisabled workers.

Another article describes work at the Engineering Projects Laboratory of the Massachusetts Institute of Technology where a many-sided attack on mobility and educational problems of the blind and other handicapped persons is being made. In a device being developed for the Braille-reading blind, a technic like the newspaper industry's linotype process will use a perforated paper tape under a typewriter keyboard to make possible high-speed Braille presentation.

A textbook tape-recording project outlined in a third article represents a big step forward for blind students in colleges and business schools. At the same time, it benefits patients of the Veterans Administration Psychiatric Hospital at Lexington, Ky., who—with a great sense of accomplishment—participate as readers. The patients' voices, recording 40 to 60 pages of text on an 1800-foot tape, make more accessible to Kentucky's blind students the law, physics, psychology, history, education, sociology, economics, and other texts needed for their chosen professions.

Among other topics in the current Rehabilitation Record are: Israel's unique vocational rehabilitation problems, the impact of Baltimore's 10-year old "Comeback" television program, pros and cons of lump-sum settlements for injured workers, and the rehabilitation of applicants for Old Age and Survivors Disability Insurance benefits.

NOTE: Single copies of Rehabilitation Record may be obtained for 30 cents from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. A year's subscription is \$1.75 for this bimonthly publication.

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From the Note Book

**ATTENTION:** All Naval Flight Surgeons attending the 33rd Annual Aerospace Medical Association Meeting at Atlantic City, N.J., 9 - 12 April 1962. All past and present Naval Flight Surgeons—Regular, Reserve, or Retired—are invited to a Dutch Treat Social Hour with refreshments at Chalfonte-Haddon Hall on Sunday night, 8 April 1962, at 6:00 p.m.

Mr. Sanger Writes on Military Medical Specialties. Articles on Aerospace and Submarine Medicine by Mr. Quintin M. Sanger of the staff, Bureau of Medicine and Surgery, appeared in the publication, NAVY, The Magazine of Seapower, December 1961 and February 1962. The first considered how the Navy has advanced space flight through its research on weightlessness, vibration, disorientation, oxygen sources, radiation, G tolerances for acceleration and deceleration, and related matters. These have been especially applicable to the training given astronauts at the human centrifuge in the U.S. Naval Aviation Medical Acceleration Laboratory, Johnsville, Pa., and at the School of Aviation Medicine, U.S. Naval Aviation Medical Center, Pensacola, Florida.

Highly important also was the aluminized Mark IV Omnienvironmental Full Pressure Suit for sustained outer space flight. This suit, with some modification, is worn by the Project Mercury Astronauts. The Mark IV suit was developed at the Air Crew Equipment Laboratory of the U.S. Naval Air Materiel Center (NAMC), Philadelphia, Pa.

The second article, on Submarine Medicine, presented some of the important measures the Navy has taken to improve the habitability of confined spaces, and discussed major medical aspects of diving as well as prolonged submersion in nuclear powered submarines.

Mr. Sanger, who studied at Yale, Columbia, and American Universities, has had many years of writing experience and has published articles in the South Atlantic Quarterly, Social Forces Magazine, and elsewhere. He has made many contributions to the preparation of historical documents and reporting other medical matters concerning the Medical Department of the Navy in general and BuMed's activities in particular.

SPECIAL NOTICE. Case Report from USNH, San Diego.

**NOTE:** Prior to his detachment as Executive Officer, USNH, San Diego, Calif., to assume duty as Commanding Officer, USNH, Jacksonville, Fla., CAPT Joseph M. Hanner MC USN forwarded to the Medical News Letter the following case report to describe an unusual and highly interesting therapeutic result. —Editor

"The patient we are talking about is a 44-year old active duty man who was hospitalized 31 March 1961 because of an acute myocardial infarction. Following this, he developed a complete auricular-ventricular conduction block, with a cardiac rate of about 30 beats per minute. On May 8, 1961, he began



to have a series of Stokes-Adams attacks of asystole. He was treated medically and was given Isuprel<sup>(R)</sup> intramuscularly and sublingually. Digitalization and diuretic medication were subsequently employed for congestive heart failure. Anticoagulant drugs were used regularly. However, in spite of all these measures, he was unable to maintain a fully adequate circulation and was a bed patient.

He was transferred to cardiac surgery where we placed him on an external electronic pacemaker and with this he made good recovery and his congestive failure subsided. It was, therefore, decided to obtain an implantable pacemaker. This we did, and on 21 September 1961, with the use of a Chardach cardiac pacemaker, we implanted it in his lower anterior abdominal wall with the wires leading from it subcutaneously into the pericardial sac. This device has given him very good results and he is now up and about the ward, with a rate of about 70. He is very happy and looks like a different individual.

As you know, these internal pacemakers contain batteries which have a life of approximately three to four years. When the battery life comes near the end, the rate of the heart will be increased by 10 or 15% by an internal device in the pacemaker which will warn the patient that he needs replacement of batteries. It is very intriguing and very interesting to see this mechanical device planted under the skin, making such good therapeutic results in a patient who was very critically ill."

Miniature Oxygen Rebreather Device. Doctor Roscoe A. Bartlett, research physiologist, U.S. Naval School of Aviation Medicine, Pensacola, Fla., has completed development of a miniature self-contained walk-around oxygen rebreather device. Patents have been applied for, and the Bureau of Naval Weapons is currently negotiating for the manufacture of the article for further test and development.

The basic requirement that led to the development of this device was the need during emergency situations for a source of oxygen, available in convenient form, and easily worn without interfering with work requirements. For example, there are times when an air crewman is required to leave the main oxygen supply source and walk some distance through narrow openings to another part of the aircraft for a brief period of time in order to monitor certain equipment. The device is capable of supplying oxygen for periods up to one hour duration. The simplicity of construction and types of materials used make it possible for the device to be stored for long periods of time without deterioration. (TIO, BuMed News, 21 February 1962)

CANBERRA Aids Turkish Sailor. The guided missile cruiser USS CANBERRA rushed to the aid of a Turkish merchant ship sailor, 10 February 1962. With Chief Mate Kamil Atay with a reported temperature at 108°F, no supplies and no doctor aboard, the SS MEHMET IPAR's call for help was picked up by the USCG who informed the CANBERRA. LT Reese E. Polesky MC USNR transferred the patient (with lobar pneumonia) to the CANBERRA. The cruiser then headed for Gibraltar. (NAV NEWS, 1 March 1962.)

**DENTAL****SECTION**Surgical Preservation of Denture-Bearing Ridges

Lowell H. Body, DDS\* J Pros Dent 12(1):60-62, Jan-Feb 1962.

Alveolectomy for immediate dentures is often done in such a manner that much of the labial plate of bone is lost. The cancellous bone between the labial and lingual plates is comparatively soft. When the labial plate is extensively trimmed, the remaining cancellous bone disintegrates readily under denture pressure. Proper surgical procedure at the time of denture insertion will help preserve, rather than destroy, denture-bearing ridges.

Operation becomes necessary when a labial flange is used on immediate dentures. Without surgical intervention, the flange causes distention of the lips and a change in facial expression. The flange is necessary for denture stability.

The operation should be performed in such a manner that the ridges are preserved. This is accomplished by saving the labial plate, which is the cortical layer of bone. The labial and lingual plates form a matrix in which the blood clot is retained. New cancellous bone is formed from the clot by osteogenic processes.

**Surgical Procedure**

The bicuspid and molar teeth are removed first when preparing a mouth for immediate dentures. If possible, a healing period of from 1 to 3 months is allowed after the removal of these teeth. The partially healed ridges afford some support for the immediate dentures and more comfort for the patient.

After the anterior teeth have been removed, the interproximal septa are removed with rongeurs and surgical burs. A cut is made from the interproximal region outward through the labial plate just distal to the cuspid eminence on both sides of the residual alveolar arch, using a No. 559 fissure bur. This cut is made through the bone only and does not involve the soft tissue. The thumb is placed against the soft tissue on the labial surface, and the bur is drawn from the interproximal region toward the thumb. The bur can be felt by the thumb and stopped before the soft tissue is damaged.

These two cuts leave the labial plate unsupported except for the attachment of the soft tissue. When sufficient interproximal bone has been removed, the labial plate is broken by pushing inward with the thumbs. If the bone springs



back instead of breaking, more weakening of its support is necessary. The bone should be heard to break or felt to break under pressure.

If the labial plate is longer than the lingual plate after the fracture, enough bone is removed to make the two plates even, and the excess gingival tissue removed. The dentures are observed in the mouth, and further trimming, if necessary, of bone or soft tissue is completed.

The soft tissue is loosely sutured, and the dentures are inserted. The patient is instructed that the dentures are serving as splints for fractured bone and, therefore, should not be removed for 24 hours. During this period, the labial plate adapts itself to the contour of the denture.

### Advantages

The labial plate of bone is preserved almost intact by this technique. The labial and lingual plates now form a matrix into which new cancellous bone will grow. The resulting ridge, when healed, is strong and capable of supporting its proper share of the masticating force. The appearance of the patient's lips is not changed, and the "denture look" is avoided. The dentures will have more stability from the beginning and will have the support of ridges which have been preserved.

\* Medical Arts Bldg., 1612 Portage Trail, Cuyahoga Falls, Ohio.

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### Tooth Fragments in the Lips

Frank J. Allen, School of Dental Science, Trinity College, University of Dublin, Dublin, Ireland. Incisor Fragments in the Lips. Dental Practitioner 11:390-391 July 1961; Dental Abstracts 7(2):100-101, February 1962.

The presence of tooth fragments in the soft tissues of the lip, an occasional complication of maxillofacial injuries, may occur more frequently than is suspected.

In childhood, injuries limited to incisors and lips are much more common than injuries involving the facial bones. Ellis (1948) found that 4.2% of school children have fractured anterior teeth and Grundy (1959) found that 5.1% have.

In the past 10 months, 4 young patients with fragments of incisors embedded in their lips were seen at the dental department of the Royal Victoria Infirmary in Newcastle upon Tyne, England. Three of the children had fallen from bicycles and the fourth had fallen on the pavement. In all children the damage was confined to the teeth and lips.

Each of the 4 patients sustained a fractured anterior tooth and a full-thickness laceration of a lip extending from mucous membrane to skin. In each patient, fragments of the fractured tooth were found in the involved lip.

Probably the involved tooth, having penetrated the full thickness of the lip, is fractured as it emerges from the skin surface on coming into contact with a hard object. The detached fragment of tooth is retained in the soft tissues which envelop it at the moment of impact.

Where enamel alone is involved, it tends to shatter and the presence of multiple fragments can be anticipated. Factors determining which lip will be involved include the direction of the length of the lip and its position at the time of injury.

In 2 of these patients, labial lacerations had been repaired and the tooth fragments were left in place until a dental opinion had been obtained. This emphasizes the ease with which such foreign bodies may be overlooked. Clinical examination often is hindered by edema of the lip.

Roentgenographic examination of fractured incisors is not sufficient in patients with an associated severe laceration of the lip. A soft-tissue roentgenogram of the damaged lip also must be obtained. The anterior occlusal view is valuable for this purpose.

The result of failure to remove portions of teeth embedded in soft oral tissues may be breakdown of the suture line, persistent chronic infection and discharge, or disfiguring fibrosis. Once the tooth fragment has been located with a needle or probe under local anesthesia, its removal is not difficult.

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#### Caries Increment as Measured by Two Types of Clinical Examinations

P. R. Weisenstein, College of Dentistry, Ohio State University, Columbus, Ohio. J Den Res 40: 492-496, May-June 1961; Dental Abstracts 7(2):93, February 1962.

The purpose of this study was to observe the effect of examination method on caries increment when the same subjects are examined using two different procedures. A group of 111 sophomore dental students was examined by 2 dentists using different methods. Two examinations, a year apart, made on each subject included a clinical examination by each of the examiners and 4 bitewing roentgenograms. The average time for the oral visual examination by Examiner A was 5.3 minutes per subject; by Examiner B, 1.9 minutes per subject. The second examination was recorded without reference to the data of the first examination.

The slow-examination method showed a mean prevalence of 17.95 DMF teeth at the initial examination, whereas the rapid-examination method indicated a mean of 15.79 DMF teeth. Similarly, the slow-examination method showed 42.27 DMF surfaces per subject, and the rapid-examination method showed 36.54 DMF surfaces per subject.

One year after the initial determination of caries prevalence, the slow-examination method showed 0.88 new DMF teeth as a mean, whereas



the rapid-examination method showed only 0.16 new DMF teeth as a mean. Similarly, the increment for DMF surfaces was 3.37 by the slow method and 1.62 by the fast method.

The examiner using the slow method found most of the diagnosed caries visually and also made most of his borderline decisions visually. The examiner using the rapid method found a smaller number of carious lesions visually but a greater number than the first examiner when interpreting roentgenograms.

The influence of the examination method and the precision of the examiner on data collected in clinical examinations are important to all investigators in studies of caries prevalence and increment.

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### Personnel and Professional Notes

Dental Corps Continuous Education Program. A postgraduate course in Oral Surgery will be conducted 9-13 April 1962 at the U.S. Naval Dental School, NNMC, Bethesda, Md. This course will consist of seminars, lectures, and demonstrations. It is intended to cover treatment of facial fractures and other oral surgical procedures, local and general anesthesia, premedication, principles of exodontia, and biopsy techniques. Emphasis will be placed on preoperative evaluations for minimal postoperative complications. Captain D.E. Cooksey DC USN, Diplomate, American Board of Oral Surgery, Head Oral Surgery Division, will be the instructor. Quotas for the course have been assigned to the following Naval districts and commands: ComOne, ComThree, ComFour, and ComFive. Applications should be received in the Bureau as early as possible. The Bureau Professional Advisory Board will make recommendations on all requests, and upon approval by the Surgeon General, applicants will be notified as to the final action. Those approved will be nominated for TAD or authorization orders, as appropriate. Accounting data will be forwarded to individual officers nominated for TAD orders. Staff Dental officers not utilizing assigned quotas should report this information as soon as possible to BuMed, Code 6112. This will allow the Bureau to fill the quota from other districts.

Navy Dental Officers at Washington, D. C. Meeting. The District of Columbia Dental Society conducted its 30th Postgraduate Clinic 4-7 March 1962 at the Shoreham Hotel, Washington. The following Navy Dental Officers participated: Capt John E. Flocken DC USN - "Modern Impression Techniques for Fixed Prosthodontics"; Capt Louis S. Hansen DC USN - "Diagnosis - Key to Therapy"; Capt Lloyd M. Armstrong DC USN - "Rationale of High Speed Instrumentation in Modern Dentistry"; Capt William A. Newman DC USN - "Positioning Denture Teeth for Lip Support"; Cdr B.F. Outlaw DC USN - "The Use of Chrome-Cobalt Alloys in Fixed Prosthesis"; LCdr R.G. Granger DC USN - "Use of Acrylic Prosthetic Teeth in Occluso-Rehabilitation Procedures"; Capt T.R. Hunley DC USN - "Reproduction of Anatomic Contours in Amalgam Restorations";

Cdr L.A. Benson DC USN - "Temporary Splinting in Periodontal Therapy";  
LCdr S.O. Bartlett DC USN - "The Protective Mouthpiece"

Hong Kong Dental Society Members Visit USS Princeton. On 3 February 1962, as part of the USS Princeton's "People to People" program, the ship's Dental officer, LCdr J.E. Harnett DC USN presented an illustrated table clinic, "Patient Remount of Complete Dentures," to 43 members of the Hong Kong Dental Society. In addition to the scientific program the visiting dentists attended a luncheon and were given a tour of the ship which included the Dental Department, along with the Hangar and Flight Decks.

Repair Contract for Higher Speed Handpieces. The Bureau of Medicine and Surgery has completed distribution of the contract negotiated with the Midwest Dental Manufacturing Company for the repair of higher speed handpieces. Provisions of this contract are effective 1 March 1962 to 28 February 1963. Additional copies of this contract may be obtained from the Chief, Field Branch (Code 42B), Bureau of Medicine and Surgery, 29th St. and 3rd Avenue, Brooklyn 32, New York.

Tactical Inspection of a Force Dental Company. As a part of a recent tactical inspection of the 3rd Marine Aircraft Wing by the Inspector General, Marine Corps, the 13th Force Dental Company was required, without advance notice, to deploy a detachment in support of an Air Group. Despite high winds which hindered tent erection, a 4-unit dental clinic was set up in the field and patients received for treatment in an elapsed time of one and one-half hours. The 13th Force Dental Company is commanded by Captain G. W. Gray DC USN.

Captain Kasper Presents Lecture. Capt S. T. Kasper DC USN, District Dental Officer, First Naval District, presented a lecture to the seminar of post-graduate students in the Graduate School of Prosthodontics, Tufts University. The subject of his lecture was "Condyle Paths: Accuracy of Registration and Acceptance by Articulators."

Newly Standardized Items. The Armed Services Medical Materiel Coordination Committee has completed coordination with the Army, Navy, and Air Force of the desired characteristics of the below listed items:

6520-721-9840 MATRIX, CROWN, DENTAL, Plastic, Central, Extra Large  
6520-721-9841 MATRIX, CROWN, DENTAL, Plastic, Central, Large  
6520-721-9842 MATRIX, CROWN, DENTAL, Plastic, Central, Med. Small  
6520-721-9843 MATRIX, CROWN, DENTAL, Plastic, Lateral, Large  
6520-721-9844 MATRIX, CROWN, DENTAL, Plastic, Lateral, Medium  
6520-721-9845 MATRIX, CROWN, DENTAL, Plastic, Lateral, Med. Small  
6520-721-9846 MATRIX, CROWN, DENTAL, Plastic, Cuspid, Medium  
6520-721-9847 MATRIX, CROWN, DENTAL, Plastic, Cuspid, Small  
6520-721-9848 MATRIX, CROWN, DENTAL, Plastic, Bicuspids, Large  
6520-721-9849 MATRIX, CROWN, DENTAL, Plastic, Bicuspids, Medium

Additional information will be promulgated when these items are available.





## OCCUPATIONAL MEDICINE

### American Industrial Health Conference

The Annual American Industrial Health Conference, sponsored by the Industrial Medical Association and the Association of Industrial Nurses, will be held at the Pick-Congress Hotel, Chicago, Illinois, 10-12 April 1962.

This conference presents an opportunity for industrial medical officers and industrial nurses to keep abreast of the latest developments in the field of industrial medicine.

It is suggested that industrial medical officers and civil service nurses apply to their Commanding Officers for permission to attend. As in previous years, expenses for attendance must be borne either by the local Command or by the individual.

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### American Industrial Hygiene Conference

The Annual American Industrial Hygiene Conference will be held at the Sheraton-Park Hotel, Washington, D.C., 13-17 May 1962. This national conference sponsored by the American Industrial Hygiene Association and the American Conference of Governmental Industrial Hygienists is attended by industrial hygienists from private industry, universities, and government agencies of the United States and other nations.

The conference will afford an opportunity to obtain information concerning new developments, techniques, and methods in the practice of industrial hygiene. In addition to the technical program, another educational and informational phase of the meeting will be the scientific exhibits. The Navy has been given space by the Conference Exhibit Committee for an attractive exhibit, being prepared by the Bureau of Medicine and Surgery, which will highlight the outstanding professional status of the Navy Industrial Hygiene Program. Still another valuable benefit to Naval personnel attending this conference will be the once-a-year opportunity of meeting and exchanging ideas on industrial hygiene problems of mutual concern with their naval colleagues.

The purpose and subject of this meeting are related to the professional duties of military and civil service industrial hygienists. The potential benefits of attending the American Industrial Hygiene Conference are consonant

with the criteria and policies in SECNAVINST 4651.8C of 13 August 1959, SECNAVINST 4651.14A of 14 August 1959, and NCPI 410.7.

It is suggested that industrial hygiene officers and civil service industrial hygienists apply to their Commanding Officers for permission to attend. As in previous years, expenses for attendance must be borne either by the local Command or by the individual.

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#### A Study of Prolonged Absenteeism in Industry

A. M. Phillips, 3624 Riverside Drive, Weirton, W. Va. J Occup Med 3(12):575-578, December 1961.

A three-year study of absenteeism at a steel company has been concluded by the medical department with some significant results. The study was initiated by the insurance department when the Sick and Accident Insurance Fund became seriously depleted from monthly deficits over a period of several years. The medical department was asked to examine some of the claimants to determine whether they were actually ill and entitled to benefits, to give advice and help to those who were ill to speed their recovery, and to identify factors responsible for the high insurance costs.

#### Illnesses Causing Prolonged Absenteeism

There were 130 persons interviewed in the Medical Department. In each case, effort was made to determine the basic disease or problem present. Secondary factors were also identified if possible.

It was determined that psychiatric illness was the principal reason for the absence of 79 persons, 61% of those examined. Emotional disturbance was a paramount cause of illness, and any related organic manifestations were minor in role. The majority of these people were not psychotic. Rather, they were individuals who met their problems of adaptation to life in our society poorly and developed multiple somatic symptoms.

The second largest category, which represents a considerable drop numerically from the psychiatric one, is composed of 10 men with pulmonary insufficiency from chronic bronchitis and pulmonary emphysema. Seven persons had arteriosclerotic heart disease, 5 had various low back syndromes of definite organic nature, and 2 were ill with chronic glomerulonephritis. All others (22 persons) had separate, single diagnoses as a reason for their prolonged illness.

#### Statistical Factors Related to Absenteeism

The relationship of age, years of employment, and sex to the absenteeism of employees is analyzed. Thirty-two (24%) of those interviewed were of the



female sex, despite an employment rate of only 3% female employees. One also noted that these female employees are rather young, of very recent employment, and almost exclusively psychiatric problems. It must be pointed out here that the female employees as a group are of young age and little seniority. There is a company rule prohibiting continued employment after marriage (unless a hardship case), and some of those investigated and interviewed had attempted to draw sick and accident benefits after they were married, a recognized abuse of the insurance plan.

Among the males the importance of age and length of employment is less readily weighed. It is observed, however, that the number of young men with extended periods of illness is unexpectedly high, and moreover, that they comprise more of the psychiatric disorders than those in the older age group with more years of employment.

It is concluded from these data that among employees interviewed there was an inappropriate number of females and younger persons of both sexes with extended absences. Moreover, psychiatric disease was the principal form of illness among them.

#### Personality Traits Related to Absenteeism

The large number of mentally and emotionally ill persons who are responsible for so much of the absenteeism masquerade, as it were, under a variety of organic diagnoses. Frequent among these are peptic ulcer, hemorrhoids, malnutrition, Meniere's syndrome, back strain, chronic bronchitis, hypothyroidism, influenza, and colitis. Neurasthenia, "nervous exhaustion," and "nervous stomach" are a few other "diagnoses" often reported by the medical attendants.

Many of these people are best characterized as inadequate personalities. They are deficient in intellect, and often they are unkempt in appearance, with poor body and dental hygiene. They are, in addition, saddled with anxieties and poor ego development. Unable to cope with the problems of day-to-day living, they take refuge in illness, in schizophrenia, in self-pity, and in dependency. Their economic and other troubles are often made worse by their inability to work, but despite this they are unable to "get going." They tend to migrate to the nonmedical healers and to the less skilled among the medical community, avoiding as it were, the means of getting well.

Others have emotional conflicts arising from unhappy and insecure childhoods where a parent was missing through divorce or death. They have a long history of illness back through adolescence and childhood.

Another type is the sociopath. He can be identified by a history of repeated injuries, both on and off the job, and antisocial acts dating from childhood—fighting, motorcycle riding, vandalism—all arising from impulsive aggressive behavior and self-destructive impulses. Frequently he comes from a broken home, has left school impulsively, or may be divorced.

Finally there are the persons who after careful consideration must be challenged as malingerers. They often time their "illness" with a period of

contemplated lay off, spring planting or harvest time, or during cold weather for a trip to a warmer climate. Many times, they have a business on the side, or another member of the family is employed.

#### Results of Interview and Examination

About 30% of the employees returned to work within one week after the interview. This is surprising when one considers that most of them had been absent from work for from many weeks to months. A figure published with this article depicts graphically the chronologic relationship between the interview and the return to work of the 77 employees who did return. It is shown as a cumulative percentage, and the slope of the curve is quite sharp in the period of time closely following the interview; in fact, the 50 percentile is at about 10 days. The connection between the interview and this development seems evident, but it is harder to evaluate for those returning after one week's time had elapsed.

A definitive disposition was made for another 30% of these persons. About 15% were found to have illnesses of such severity that return to work in the future would not be practical, and they were given permanent and total disability pensions at the termination of their sick and accident benefits. The other 15% were considered to be neither physically nor emotionally suitable for carrying out the types of work available to them in the industry, nor was it considered that treatment and other measures would result in appreciable change in their problem. Accordingly, they were released from employment. Also included in this group are a few persons who were considered well enough to return to work but who did not do so, and a few female employees who were found to be married.

It is felt that the program is of benefit to the employee in the following ways:

1. It helps to evaluate his illness and general health.
2. It encourages him to seek and follow through with treatment if this is not being done.
3. It helps to secure aid for himself or his family through public agencies if this is necessary.
4. It clarifies any problems within the insurance program of the company.
5. It helps to plan any needed work readjustments early.
6. It encourages him to return to work when able to.

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Whenever a man begins to think he's indispensable he should stick his finger into a bowl of water then notice the big hole it leaves when he takes it out.

—James Farley



Health Physics and Radiation Litigation

University of California Information Exchange Bulletin 1(11):2-3, November 1961.

Generation of radiation hazard control data frequently is scrutinized critically in the hope of reducing the chore of record keeping. From solely a legal viewpoint the real criterion of the quantity and quality of health physics measurements is the effectiveness of the records in protecting those involved in a lawsuit claiming radiation injury. The type of records necessary has not been clearly defined by legal counsel, probably for lack of precedent for injuries in this new field. H. K. Shapar has presented an enlightening discussion in Health Physics, Vol. 5, pages 155-159 (1961) under the title, "Significance of Health Physics Evidence in the Trial of a Case of Radiation Personal Injury."

In a trial involving alleged radiation injury, extensive use undoubtedly will be made of the film badge readings and other health physics data as evidence. It is necessary, therefore, to have a records system that is adequate for litigation protection. The degree of documentation must take into account the fact that the records may be needed many years in the future. Carefully planned and systematic generation of the proper health physics records and data in the regular course of business will facilitate admission of those records and data into evidence in possible future litigations.

The "law of radiation" is far from a settled application. The approach taken by any given court is an open question. In addition, there will arise perplexing difficulties of proof and evidence because radiation from a source outside the body leaves no evidence other than the injury it inflicts or its effects on certain instruments and devices.

A primary requirement is a standard operating procedure for the systematic generation of records admissible in evidence and covering the entire period of possible exposure to persons in the vicinity of the source. Since only the defendant has the means of generating the records, a court may rationalize "negligence" out of a failure to maintain adequate records.

The admissibility of health physics data depends a great deal on the reliability of the instruments which produce those data. It is necessary to show that the instruments and devices are generally trustworthy in giving at least a reasonable approximation of the "truth." There is a further necessity to provide proof that a particular instrument was properly set up, tested, and calibrated, and that the persons operating the instruments and taking the readings were sufficiently qualified to perform those tasks. Failure to use the most modern instruments for determining the kind and amount of radiation may, in itself, be held to indicate lack of reasonable care. This would make a strong point for a case of negligence. The importance of keeping abreast of current developments is not to be underestimated. The use of a variety of devices offers distinct advantages in that the data from one device may be used to corroborate the data from another, thus improving the value and admissibility as evidence.

Expert testimony may be required to explain the scientific principles for the instrument application, to interpret health physics data, and to convince the court of the reliability of both. The complexities of principles and concepts, and the terminology of radiation operations must be translated into clear and understandable equivalents for the layman, in order to avoid losing the value of carefully recorded and laboriously assembled health physics data. Inability to demonstrate compliance with applicable health and safety regulations in understandable terms may lead to a ruling of negligence. (Editor's Note: Much of the material in the article and this summary is applicable to all phases of occupational diseases.)

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#### Explosives Plant Fatalities

Public Health Service, HEW, Bureau of State Services, Division of Occupational Health, Washington 25, D. C. Quarterly Report on Occupational Health Activity, October-December 1961.

The fourth fatality in an explosives manufacturing plant within a period of 15 months occurred recently. The victim, a 38-year-old employee, had his fatal attack of illness while checking a dynamite packing machine on a Monday morning. As in the 3 cases previously reported, the cause of death was listed as acute myocardial infarction. The attack of illness occurred at the beginning of the work day after a period of 24 to 72 hours away from exposure in 2 of the previous 3 cases.

A similar pattern has been reported in the literature. Sudden death and severe angina have been attributed to exposure to ethylene glycol dinitrate used in nitroglycerine to manufacture antifreeze dynamites. At least 35 fatalities have occurred in the American explosives industry.

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#### Contamination of Potable Water due to Soft Drink Vending Machine

A sample of water from a ship was submitted on 7 August 1961 for analysis. Complaints had been received of a metallic taste and of the formation of a blue color upon the addition of soap. Since an excessive concentration of copper in the water would cause the above effects, a quantitative determination was run. Analysis revealed that the water sample contained 16 parts per million of copper.

A possible cause for the contamination was a soft drink vending machine which had recently been installed aboard ship. The release of carbon dioxide into the water lines and the corrosive action of carbonic acid on the copper pipes would release soluble copper into the potable water supply. The



carbon dioxide supply to the machine was shut off, the lines were purged and additional samples were taken from various parts of the ship on 9 August 1961. Results of the analyses were as follows:

<u>Sampling Site</u>	<u>Cu PPM</u>
Chill water tank - Engine Room	0.7
Scuttle Butt - #5 Hold	0.8
Scuttle Butt - Soda Fountain Lounge	0.7
Coke Machine	1.4

These concentrations of copper are within permissible limits for potable water. A recommendation was made that the check valve in the line leading to the vending machine be examined for possible defects. (Medical Department, New York Naval Shipyard.)

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#### Recent Publications of Interest in Occupational Health

Note: May be ordered from ASTIA (see librarian for ordering). ASTIA numbers are indicated by AD prefix.

- AD 264631 Process of Applying Thin Films of Teflon to Steel Surfaces, NAVWEPS OD 10362, 1st Rev. 15 Aug. 1961
- AD 264362 Guidelines for the Operation of a Beryllium Research Facility - NAVWEPS Report 7198 1 Oct 1961 NavOrdLab - Corona
- AD 264593 Aircraft Noise Emmission - Survey of A3J-1 Airplane, Proj. PTR-PP-3675, Report #6 31 Aug 1961 NavAir Test Center, Patuxent River, Md.
- AD 264682 Fundamental Study of Jet Noise Generation and Suppression, Vol. II Bibliography WADD Tech Report 61-21, Vol. II Dec 1960 Wright-Patterson AF Base, Ohio.
- AD 263919 The Selection of Low Magnetic Alloys (Beryllium) for Explosive Ordnance Disposal Tools NavOrd Report 6971 9 Aug 1961 US Naval Weapons Plant, Washington 25, D.C.
- AD 84553 Criteria for Short Time Exposure of Personnel to High Intensity Jet Aircraft Noise Sept 1955 Wright-Patterson AF Base, Ohio.
- AD 261500 B-58 Flight Line & Maintenance Hangar Noise Survey (Carswell AFB, Texas) July 1961 Air Proving Ground Center, Eglin Air Force Base, Fla.
- AD 261694 Research Report - A Study of the Effects of Gunfire & Other Infantry Combat Training Noises on the Hearing Acuity of U. S. Marine Corps Recruits - 2 May 1961 U. S. Naval School of Aviation Medicine, US Naval Aviation Medical Center, Pensacola, Fla.

- AD 257039 An Investigation of Certain Means of Sound Attenuation at the Ear  
1961 Syracuse University Research Institute, Syracuse, N. Y.
- AD 245980 The Problems of Criteria for Noise Exposure Oct 1960 - Office  
of Naval Research
- AD 110680 Noise Characteristics of Air Force Turbojet Aircraft Dec 1956  
Wright Air Development Center, Wright-Patterson AF Base, Ohio
- AD 260285 USNEL Flight Deck Communication System Part 5. Message &  
Personnel Response 29 Nov. 1960 US Navy Electronics Labora-  
tory, San Diego, Calif.
- AD 260286 USNEL Flight Deck Communication System, Part 2, Noise &  
Acoustic Aspects 29 Nov 1960 US Navy Electronics Laboratory,  
San Diego, Calif.
- AD 244786 Biomedical Effects of Exposure to Electromagnetic Radiation  
Part I - Ultraviolet May 1960 Wright Air Development Center,  
Wright-Patterson AF Base, Ohio
- AD 125499 A Survey of the Elevated Temperature Properties of Teflon &  
KEL-F 24 Aug 1956 Watertown Arsenal, Watertown 72, Mass.
- AD 261549 Methods of Bonding Fluorocarbon Plastics to Structural Materials  
May 1961 Plastics Technical Evaluation Center, Picatinny Arsenal,  
Dover, N. J.
- AD 261596 Technical Report - Development of Techniques, Procedures &  
Instrumentation for the Detection & Measurement of X-Ray Hazards  
Associated with Radar 26 May 1961 Material Laboratory,  
New York Naval Shipyard, Brooklyn 1, N. Y.
- AD 260268 The Composition & Thermodynamic Properties for the Combustion  
Products of Beryllium and Air June 1961 Convair Division,  
General Dynamics Corp., San Diego, Calif.
- AD 253352 A Selected Guide to Beryllium Literature 16 March 1961 Auto-  
netics Division of North American Aviation Inc.
- AD 253297 Beryllium, Actual & Potential Resources, Toxicity and Properties  
in Relation to its use in Propellents and Explosives 14 Nov 1960  
US Naval Ordnance Laboratory, White Oak, Md.
- AD 253284 Beryllium - A Survey of the Literature Dec 1960 Lockheed Air-  
craft Corp., Missiles & Space Division, Sunnyvale, Calif.
- AD 145847 Report on Investigation of Foamed-in-Place Plastics for Shipboard  
Use Aug 1956 Mare Island Naval Shipyard, Design Division,  
Vallejo, Calif.
- AD 263270 Thermal Degradation of Polymeric Materials, Toxicity, Evalua-  
tion of Some Gases evolving from Epon 828 & LP 33 Composite  
Polymer Aug 1961 Lockheed Aircraft Corp., Missiles & Space  
Division, Sunnyvale, Calif.
- AD 161856 Coating & Chemical Laboratory - A New "Spot" Test for Epoxy  
Resins 2 June 1958 Aberdeen Proving Ground, Md.
- AD 248189 Rigid Foam Plastics Information Manual Dec 1960 Materials  
Laboratory, New York Naval Shipyard, Brooklyn 1, N. Y.
- AD 234978 Plastic Foam Primer March 1960 Feltman Research & Engineering  
Labs, Picatinny Arsenal, Dover, N. J.



- AD 259830 Safety of Personnel During an LM-99A Missile Launching June 1961 Air Proving Ground Center, Bioastronautics Division, Eglin Air Force Base, Fla.
- AD 253316 Acoustical Hazards of Rocket Boosters, Vol II Effects on Man Nov 30, 1960 Aeronutronic Ford Motor Co., Ford Rd., Newport Beach, Calif.
- AD 241985 Threshold Values for Thermal Radiation Burns on Human Subjects May 1960 Defence Research Board of Canada, Ottawa, Canada
- AD 261505 Launch Noise Distribution of Nike-Zeus Missiles July 1961 U. S. Army Signal Missile Support Agency, White Sands Missile Range, New Mexico
- AD 263427 Toxicological-Meteorological Factors in Selection of Rocket Sites Sept 14, 1961 The Marquardt Corp., Van Nuys, Calif.
- AD 263378 Design of Safety Equipment for Handling High Energy Research Materials of Unknown Sensitivity Aug 4, 1961 Gallery Chemical Co., Research & Development Division, Gallery, Pa.
- AD 260235 The Present Status of Chemical Research in Atmospheric Purification and Control on Nuclear-Powered Submarines July 14, 1961 U. S. Naval Research Laboratory, Washington 25, D. C.
- AD 263053 Evaluation of Airport Noises and Community Reaction Sept 1960 Cornell Aeronautical Lab., Inc., Buffalo, N. Y.
- AD 262464 Final Report to US Army Biological Warfare Labs. on: Development and Construction of a Portable Particle Photometer & Size Distribution Analyzer April 11, 1961 Southern Research Inst., 2000 9th Ave. S. Birmingham 5, Ala.
- AD 262943 Development of Damping Treatments for New Construction Submarines 7 Sept 1961 Rubber Laboratory, Mare Island Naval Shipyard, Vallejo, Calif.
- AD 262722 Temporary Hearing Losses for Protected and Unprotected Ears as a Function of Exposure time to continuous and Impulse Noise June 1961 Headquarters, Quartermaster Research & Engineering Command, US Army, Natick, Mass.
- AD 262716 Adhesives for Bonding Aluminum (U) 28 March 1961 US Naval Ordnance Laboratory, White Oak, Md.
- AD 259835 Shelter Habitability Studies - The Effect of Oxygen Depletion & Fire Gases on Occupants of Shelters 18 July 1961 US Civil Engineering Lab, Port Hueneme, Calif.

YDSO System Notice 4450 Subj: Pesticides and Hazardous Industrial Materials; labeling, storing and handling of 20 Nov 1961 Bureau of Yards & Docks Supply Office

NAVWEPS 10-1-764 Safety Precautions for Photographic Personnel 1 Jan 1960 (Rev. 1 Sept 1960) From Naval Supply Depot, 5801 Tabor Avenue, Philadelphia 20, Pa. (McClure, C. R., Industrial Hygienist, Medical Department, U. S. Naval Weapons Plant, Washington 25, D. C.

Industrial Safety Experience with Trichloroethylene.  
Its Use as a Vapor Degreasing Solvent 1948-1957

J.J. Hargarten; G.H. Hetrick; A.J. Fleming. Arch Environ Health 3:461-467, October 1961 - Abstract from Industr Hyg Dig 25(12): 15, December 1961.

No one familiar with trichloroethylene, or any other organic solvent, will contend that the solvent is harmless and, therefore, can be used with abandon. However, based on facts derived from analysis of a sizeable industrial sample and from the broad experience of the many contributors of this report, it is concluded that trichloroethylene, when employed in the vapor degreasing process, is being used safely in the base majority of installations now operating in the United States. The frequency of injury is low, and those injuries which do occur are predominantly associated with specific episodes of neglect of safety practices during machine maintenance and operation rather than from day-by-day exposure. The solvent concentrations in the working area of most degreasers are maintained well below recommended safe limits. The injury-frequency rate in the range of 0.3/1,000,000 exposure hours in the 1948-1957 period indicates that the use of trichloroethylene in a vapor degreaser imposes a negligible additional hazard upon the operation and maintenance of equivalent mechanical equipment. The study of the experience with vapor degreasing during this period also pointed out the following factors which have contributed to the attainment of the level of safety generally prevailing in industry today. (1) Improvements in equipment design, safety controls, and material handling equipment have reduced the solvent consumption per unit of work handled and operator and maintenance exposure. (2) Improvements in the stabilizer systems have lengthened the time between degreaser cleanouts and thus minimized exposure to trichloroethylene. (3) The extensive technical service programs supporting the use of trichloroethylene have increased the users' understanding of the solvent and of the principles involved in proper degreaser operation and maintenance.

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Safety Note About Dry Cleaning Machines

Your Health, Utah State Department of Health 19(1):4, January 1962.

The new do-it-yourself dry cleaning machines are becoming increasingly numerous and popular in cities throughout the nation.

These new machines are safe as long as they are used properly, but may become a hazard if one is careless. The fluid that is generally used in these dry cleaning machines is perchlorethylene and is practically nontoxic, but is an anesthetic.

Inhalation of these vapors could produce dizziness, stupor, unconsciousness and after prolonged exposure to the vapors could even cause death.



The possibility of this happening is slight, but the following precautions should be taken:

(1) Never overload the machine. Weigh clothes carefully according to directions. Overloading can prevent clothes from drying properly and in a damp state the clothes can give off fumes.

(2) If the clothes are damp when removed from the machine, put them in the open air, preferably out of doors, to dry.

(3) Clothes still damp from dry cleaning should not be worn by children or adults.

(4) While transporting recently dry cleaned clothes in a car, provide ventilation, especially if clothes are damp or if a strong odor is noticed.

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**RESERVE**



**SECTION**

#### Information for Official Records

Many Reserve officers wish to augment their official record, as maintained by BuPers, with evidence of their achievements in civil and community affairs.

This information is of value in mobilization planning and also provides additional guidance to various boards.

However, there are right and wrong ways to go about getting these accomplishments on record.

The Annual Qualifications Questionnaire (NavPers 319) and the Report of Fitness of Naval Reserve Officers on Inactive Duty (NavPers 937) are the Navy's primary means of recording such information on a readily identifiable document. These forms should be used whenever possible.

The front of the Annual Qualifications Questionnaire has space for certain specific data required of all officers. The reverse side, however, may be used as a yearly resume of important personal, civil, and community accomplishments. Achievements in the literary field, for example, can be documented by listing the title of the paper, article, or book written, date published, name of publisher and, if desired, a concise descriptive paragraph.

Here's another method: You—or your commanding officer—may submit to the Chief of Naval Personnel, in official letter form forwarded through the chain of command, a summary or condensation of these accomplishments for inclusion in your official record.

The wrong way? Reserve officers sometimes send in technical papers, professional articles, pamphlets, magazines, personal letters, newspaper items and publicity articles. This material is inappropriate because it is bulky and difficult to file, and because it does not readily lend itself to board review.

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### USNR Participation Saves Tax Dollars

Now that "income tax time" is rolling around again, it might be a good idea to consider the deductions to which you may be entitled as a member of the Naval Reserve.

Reservists on inactive duty may deduct amounts spent for the purchase and maintenance of uniforms; they may also deduct transportation costs involved in attending drills.

Deduction of Uniform Costs. You may deduct unreimbursed amounts spent for the purchase and maintenance of uniforms for federal income tax purposes.

An Internal Revenue Service ruling states that the deduction is allowed as an "ordinary and necessary business expense" when uniforms are required and allowed to be worn only when on active duty for training for temporary periods, when attending service school courses and training assemblies (drills).

If you are on inactive duty, you may deduct not only the cost of uniforms required for training duty and drills, but the maintenance of these uniforms. However, if you receive a uniform gratuity, your expenses are deductible only to the extent that they exceed your uniform gratuity in that particular year.

Here is an example: You may deduct the cost—purchase price and maintenance—of uniforms bought in 1961—when you file your 1961 federal income tax return. If you received a uniform gratuity in 1961 of, say, \$100, and the cost and maintenance of your uniforms amounted to \$175, you may deduct \$75 on page 2 of your tax return (Form 1040).

If you received no uniform gratuity in 1961, you may deduct the entire sum—in this case, \$175. A uniform gratuity received in a year is non-taxable and need not be considered—except as an offset against uniform expenses incurred during that same year.

(Reservists' service on full-time active duty may only deduct the cost of all items of insignia of rank and corps.)

Transportation and Travel Expenses. All travel and transportation allowances paid by the Navy Department while you are in a mileage or per diem status are considered to have been accounted for to your employer.

If you broke even—or if you do not choose to deduct excess expenses—you may simply answer "yes" to the questions relating to expense accounts on page 2, Form 1040, or check item 8, page 1, Form 1040A, and forget the matter.



On the other hand, if allowances exceeded expenses, you should answer "yes" to the questions on page 2 of Form 1040 and enter the excess, labeled "excess reimbursements," as "wages."

If you claim excess expenses—or if no allowances were authorized—all allowances, reimbursements and expenses must be listed. The excess expenses are computed on IRS Form 2106, and deducted from your Navy pay, if any, before entering the net wages or expenses as "wages" on page 1 of Form 1040.

"Travel expenses" include meals and lodging of Reservists who, under competent orders and with or without compensation, are required to remain away from their principal place of business overnight in the performance of authorized drills and training duty.

Reservists required to work and drill on the same day at each of two different locations within the same city or general area may deduct one-way "transportation expenses" in going from one place of business to another. When they return home before drills, one-way expenses from home to place of drill, not to exceed expenses from place of work to place of drill, may be deducted.

Round trip transportation expenses are deductible when the duty area is situated beyond the city or general area which constitutes the principal place of business, provided free transportation between these locations is not furnished by the Navy.

Expenses of an automobile would ordinarily include such items as gasoline, oil, minor repairs, depreciation and the like. If you keep a record of all automobile expenses for the year, you can easily determine the amount of deduction for your drill trips. One way to do this is to take the ratio of the total mileage of your drill trips to the total mileage for the year, and apply that percentage to your total expenses for the year.

However, the Internal Revenue Service has accepted a reasonable rate-per-mile in lieu of actual automobile costs under certain circumstances—up to seven or eight cents per mile. This is a "rule of thumb" practice, however, and has no basis in law or regulation.

Additional information on income tax deductions may be found in the Federal Income Tax Information for Service Personnel pamphlet, prepared annually by the Judge Advocate General. Copies of this publication should be available at your Naval Reserve Training Center or the nearest naval activity.

If you were released to inactive duty and have since lost or misplaced your Withholding Tax Statement (Form W-2), you may request a copy of this form from the Commanding Officer, U.S. Navy Finance Center, Cleveland 14, Ohio. Be sure to give place and date of separation, service number, and any other information which will enable the Finance Center to locate your account.

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Annual Convention of the  
American Pharmaceutical Association

The American Pharmaceutical Association will hold its annual meeting at Convention Hall, Las Vegas, Nevada on 25-30 March 1962. Military symposia will be conducted on 26, 27, 28, and 29 March.

Eligible (active status) inactive duty Naval Reserve Medical Department officers may earn one retirement point credit for attendance at symposium sessions provided they register with the military representative present.

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